



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,938	04/27/2001	Erik K. Karell	60426-218;2000P09005US01	2261
24500	7590	11/03/2004		EXAMINER
SIEMENS CORPORATION INTELLECTUAL PROPERTY LAW DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830				TA, THO DAC
			ART UNIT	PAPER NUMBER
				2833

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/844,938	KARELL, ERIK K.
	Examiner Tho D. Ta	Art Unit 2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 12 August 2004.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-23 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romann et al. (5,584,704) in view of Murakami (5,137,468).

In regard to claims 1 and 2, Romann et al. discloses a fuel injector assembly, comprising: a body portion 2 that houses fuel injector components (this feature is seen to be an inherent teaching of that device since it is apparent that some type of components must be present in the body portion 2 for the fuel injector assembly to function as intended); an electrical interface portion 10 supported by the body portion 2; and at least one connector means 9 supported on the interface portion 10 (column 4, lines13-15), the connector means 9 electrically couple the electrical interface portion 10 to the electrical conductor 5.

However, Romann et al. does not disclose that the connector means 9 supported on the interface portion 10 (column 4, lines13-15) is a deformable connector means; wherein the deformable connector means having at least one edge for piercing and penetrating through an insulation covering on an electrical conductor 5 to thereby electrically couple the electrical interface portion 10 to the electrical conductor 5; and

wherein the deformable connector means includes a plurality of connector members, each comprising a barb of flexible metal material.

Murakami teaches a deformable connector means which provides more reliable mechanical and electrical connection (column 2, lines 14-20); wherein the deformable connector means having at least one edge 3a for piercing and penetrating through an insulation 8 covering on an electrical conductor 7 to thereby electrically couple the electrical interface portion 2 to the electrical conductor 7; and wherein the deformable connector means includes a plurality of connector members, each comprising a barb 3a of flexible metal material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Romann et al. by constructing the connector means 9 as taught by Murakami in order to provide more reliable mechanical and electrical connection to the fuel injector assembly.

In regard to claim 3, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the electrical interface portion 10 at least partially extends outwardly and away (in a vertical direction with respect to Fig. 6) from the body portion 2 and the connector member 9 is outside of the body portion 2.

In regard to claims 4, 5 and 11, Romann et al. discloses a fuel injector assembly, comprising: a body portion 2 that houses fuel injector components (this feature is seen to be an inherent teaching of that device since it is apparent that some type of

components must be present in the body portion 2 for the fuel injector assembly to function as intended); an electrical interface portion 10 supported by the body portion 2; at least one connector member 9 supported on the interface portion 10 (column 4, lines13-15) for making electrical contact with the electrical conductor 5.

However, Romann et al. does not disclose that the connector means 9 supported on the interface portion 10 (column 4, lines13-15) is a deformable connector means; wherein the deformable connector means having at least one edge for piercing and penetrating through an insulation covering on an electrical conductor 5 to thereby electrically couple the electrical interface portion 10 to the electrical conductor 5; and wherein the deformable connector means includes a plurality of connector members, each comprising a barb of flexible metal material.

Murakami teaches a deformable connector means which provides more reliable mechanical and electrical connection (column 2, lines 14-20); wherein the deformable connector means having at least one edge 3a for piercing and penetrating through an insulation 8 covering on an electrical conductor 7 to thereby electrically couple the electrical interface portion 2 to the electrical conductor 7; and wherein the deformable connector means includes a plurality of connector members, each comprising a barb 3a of flexible metal material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Romann et al. by constructing the connector means 9 as taught by Murakami in order to provide more reliable mechanical and electrical connection to the fuel injector assembly.

In regard to claim 6, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses a securing member 3 placed over the conductor 5 and the connector member 9.

In regard to claim 7, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the securing member 3 comprises plastic that is molded over the conductor 1 and the connector member 9 (column 6, lines 25-29).

In regard to claim 8, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the securing member 3 comprises a seal (this feature is inherent due to the overmold).

In regard to claim 9, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the securing member 3 comprises a plastic material.

In regard to claim 10, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the conductor 5 comprises a flexible conductor cable 1.

In regard to claims 12-14, Romann et al. discloses a method of making an electrically conductive connection between an electrical interface 10 on a fuel injector that has at least one connector member 9 and an electrical conductor 5, comprising the steps of positioning a portion of the conductor 5 near the connector member 9; and establishing an electrically conductive connection between the electrical interface 10 and the conductor 5.

However, Romann et al. does not disclose the steps of deforming the connector member 9 to pierce through an insulation covering on the conductor, the step of crimping the deformable member 9 onto the conductor 5, and the step of at least partially penetrating the conductor 5 with a portion of the connector member 9 to establish an electrically conductive coupling through the deformable connector member 9.

Murakami teaches the step of deforming the connector member 1a to pierce through an insulation covering on the conductor 7, the step of crimping the deformable member 3a onto the conductor 7, and the step of at least partially penetrating the conductor 7 with a portion of the connector member 1a to establish an electrically conductive coupling through the deformable connector member 3a in order to provide more reliable mechanical and electrical connection (column 2, lines 14-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Romann et al. by constructing the connector means 9 as taught by Murakami in order to provide more reliable mechanical and electrical connection to the fuel injector assembly.

In regard to claim 15, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses the step of covering the connector member 9 and an associated portion of the conductor 5 after performing the establishing the electrical connection step (column 6, lines 25-29).

In regard to claim 16, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses the step of molding a plastic material onto the connector member 9 and the associated portion of the conductor 5 (column 6, lines 25-29).

In regard to claim 17, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses a step of placing a seal 3 over the connector member 9 and the associated portion of the conductor 5.

In regard to claims 18, 19, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the plurality of connector members 9 make electrical contact with a single electrical conductor 5a-5e.

In regard to claim 20, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the conductor 5 comprises a flex cable.

In regard to claim 21, Romann et al. as modified by Murakami has been discussed above. Romann et al. discloses that the connector means 9 establishes a mechanical connection between the interface portion 10 and the conductor 5 (see fig. 5).

In regard to claims 22, 23, Romann et al. as modified by Murakami has been discussed above. Romann discloses that the connector means 9 establishes a physical connection between the interface portion 10 and the conductor 5 (see fig. 5).

### ***Response to Arguments***

3. Applicant's arguments filed 08/12/04 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, at best understood, the basic concept of the claimed invention is to provide the deformable connector means having at least one edge for piercing and penetrating through an insulation covering on an electrical conductor. Romann et al. discloses generally all that is claimed except that Romann et al. uses inconvenient, expensive and time consuming

processes such as soldering, welding or soldering squeezing to complete the permanent electrical connection. Murakami teaches a deformable connector means which provides more reliable mechanical and electrical connection; wherein the deformable connector means having at least one edge for piercing and penetrating through an insulation covering on an electrical conductor to thereby electrically couple the electrical interface portion to the electrical conductor; and wherein the deformable connector means includes a plurality of connector members, each comprising a barb of flexible metal material. Thus, the combination of the cited references are proper and analogous.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho D. Ta whose telephone number is (571) 272-2014. The examiner can normally be reached on M-F (8:00-5:30). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (571) 272-2800 ext 33. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tdt  
11/01/04

*modata*  
THO D. TA  
PRIMARY EXAMINER